REPORT ON DEVELOPMENT OF CROSS BORDER TRADING ACTIVITY IN CENTRAL ASIA
&
RECOMMENDATIONS FOR REMAP FURTHER ASSISTANCE

USAID's Regional Energy Markets Assistance Program for Central Asia (REMAP)

Implemented by:

The United States Energy Association

December 20, 2007

Executive Summary

This report was prepared in accordance with the USEA approved Scope of Work involving the further development of cross border electricity trading between Kyrgyzstan and Kazakhstan. It falls within the overall framework of Component One of the Regional Energy Market Assistance Program (REMAP) for Central Asia. The overall goal of the Component One is to enhance the regional electricity trade in the Central Asia Republics ("CAR") in a way that will lead to the overall saving of energy resources and creation of opportunities for investments in region power sector resources.

The following plan of action summarizes the recommendations related to the on-going development of Kyrgyzstan – Kazakhstan cross border trading using Kazakhstan centralized trading platform and the continuing enhancement of existing Kazakhstan wholesale power market:

- REMAP staff working together with CPC and KOREM should help in organizing a meeting with the Kazakhstan power sector policymakers to suggest and discuss directions of further enhancement of the wholesale power market. CPC and/or KOREM should act as moving forces for organizing the meeting. – Mid January 2008

- Assuming a positive outcome of the meeting with the Kazakhstan power sector policymakers in January 2007, the REMAP staff should continue to discuss the directions for further enhancing of Kazakhstan wholesale power market with a wider set of power market stakeholders. – End of January 2008.

- REMAP staff organize a meeting and with the management of National Electric Grid Company ("NESK") of Kyrgyzstan regarding the current state of the regional power system issues that are of concern to the Kyrgyzstan power system. These discussions should result in identifying the approach that REMAP should adopt to help resolve these issues in a way beneficial to the Kyrgyzstan power system – Mid to End of January 2008

- REMAP staff and KOREM management should engage Kazakhstan custom officials in discussion and resolution of issues related to participation of energy export/import in the centralized wholesale power trading process. As part of this effort, REMAP should organize joint meeting of Kyrgyzstan and Kazakhstan custom officials – Mid-January – End of January 2008.

- REMAP should provide technical assistance to CPC on wholesale power market monitoring issues by providing a number of workshops with CPC staff to introduce international practice approaches to competitive market monitoring – Mid January – Mid April 2008.

- REMAP staff together with KOREM should analyze the extent to which legislative, legal and regulatory changes are required to implement recommendations to enhance the Kazakhstan wholesale power market operation – February – March 2008.

- REMAP staff should organize the meeting of representatives of Kazakhstan and Kyrgyzstan to discuss and agree on best ways to implement trading of Kyrgyzstan energy on the KOREM platform – Mid-March 2008.

- REMAP staff together with KOREM staff would continue to work on removing barriers to trading Kyrgyzstan energy on the KOREM platform in time for the beginning of 2008 water passage season – February – April 2008.

- When Kazakhstan balancing market becomes operational the REMAP staff would collect market information and provide review of the initial operation of balancing market. This would enable additional improvements to the Kazakhstan wholesale power market – May – July, 2008

- REMAP staff and Kazakhstan counterparts would continue to work on recommendations following meetings on Kazakhstan market enhancement issues February – July 2008.

The goals of this action plan and associated recommendations are to achieve the following;

- The first kilowatt hours of Kyrgyzstan electricity should begin to be traded on KOREM – Mid-April, 2008
- Recommendations toward enhancing Kazakhstan wholesale power market operation are accepted by the power sector policymaking agencies and implementation plan is developed – January – April, 2008.

The review and recommendations related to the associated legal aspects of this recommended action plan would be submitted later as a separate appendix after legal experts have completed their review.

This report which summarizes the activities of the REMAP staff, consisting of Michael Bekker, Ms. Mariyash Zhakupova in Kazakhstan and Ms. Olga Terentieva in Kyrgyzstan, was prepared in accordance with the USEA approved Scope of Work dated October 17, 2007 involving the further development of cross border electricity trading between Kyrgyzstan and Kazakhstan and is based on the information collected during Michael Bekker trip to the Kazakhstan and Kyrgyzstan in the period of October 15 – November 2, 2007.

I. Background

The Scope of Work for this task relates to the further development of cross border electricity trading between Kyrgyzstan and Kazakhstan. It falls within the framework of Component One of the Regional Energy Market Assistance Program (REMAP) for Central Asia. The overall goal of the Component One is to enhance the regional electricity trade in the Central Asia Republics ("CAR") in a way that will lead to the overall saving of energy resources and creation of opportunities for new investments in region power sector resources. To achieve this goal, REMAP is providing assistance to the Central Asian national system operators, the regional Coordinating Dispatch Center ("CDC"), market operators, regulators and ministry officials in developing an understanding of the best international practices and outlining procedures to support electricity trading. During REMAP's first year there were a number of positive developments toward facilitation of the REMAP goals. These achievements included: open auctions to sell electric energy in Kyrgyzstan, a directive by the President of Kazakhstan to consider formation of the international power exchange, and the establishment of the CDC as an international organization.

In spite of these significant accomplishments, experience during REMAP's first year has shown that for a variety of complex reasons, when considering a CAR region-wide "wholesale power market," there remain barriers to establishing a comprehensive regional electricity market for quite some time. By this it is meant that a centralized wholesale power market based upon centralized technological operation of a united power system incorporating market administration functions which would include operation of the power exchange, where market players in Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan along with Turkmenistan, if they re-interconnect on permanent basis. These complex reasons are mainly political and are beyond the scope of the REMAP work and out of our control.

Currently the CAR region-wide wholesale power market is based simply on a list of principles for establishing a common electricity trading space, which is in line with the concept for the development of the joint Commonwealth of Independent States ("CIS") market adopted by the CIS Power Council, of which all Central Asian republics are members.

Meanwhile REMAP recognizes that one country in the region, Kazakhstan, has a functioning wholesale power market. While a full regional power market structure has yet to be developed, there are opportunities to integrate some regional trading into the structure of the Kazakhstan wholesale power market. During discussions on the REMAP Year Two work plan it was recommended that, with regard to Component One activities, REMAP should focus on opportunities to utilize the Kazakhstan wholesale power market as a trading platform for growing the regional wholesale power market. This approach seems to be the most promising from the point of view of achieving specific positive results. In this regard a very important task is to enhance the rules and procedures of the Kazakhstan wholesale power market to improve its operating efficiency, in particular by building up its and regional capability for centralized trading. Representatives of Kazakhstan power sector entities, particularly KOREM and the Committee for Protection of Competition ("CPC"), have already publicly identified some of the key activities that are needed to undertake to improve operation of Kazakhstan wholesale power market.

The Kyrgyzstan generating company – Joint Stock Company "Electric Power Stations" (JSC ESP) have already conducted three energy auctions, the most recent one in August 2007. So far it appears

that mostly Kazakhstan and Kyrgyzstan traders have participated in the EPP auctions. In June – July of 2007 as a result of REMAP facilitation efforts, the Tajikistan national electric utility, Barki Tojik, and the Kazakhstan Operator of Energy and Capacity Market ("KOREM") entered into agreement of cooperation for Barki Tojik participation in KOREM market operations. Shortly thereafter the JSC EPS executed a membership agreement with KOREM, and, in July 2007, two representatives of JSC EPS were certified to act as participants for centralized trading on the KOREM market platform. Technically, the JSC EPS of Kyrgyzstan staff is already capable of engaging in KOREM trading operations, however more needs to be done to transition from the current ad hoc arrangement into a fully functional set of procedures that will formally institutionalize participation of foreign entities in the Kazakhstan wholesale power market.

One of the primary purposes of this report is to summarize the current state of the Kyrgyzstan-Kazakhstan electricity trading, analyze the state of the Kazakhstan wholesale power market and provide recommendations on the technical improvements and legal assistance to the CAR Governments along with power sector entities of Kyrgyzstan and Kazakhstan. This will facilitate achieving further enhancement of the Kazakhstan wholesale power market, integration of trading activities of neighboring countries (particularly Kyrgyzstan) into the Kazakhstan wholesale power market framework and the further development of cross border trading of Kyrgyzstan's surplus electricity on the Kazakhstan market.

II. General Comments

This report is based on information collected during Michael Bekker trip to the Kazakhstan and Kyrgyzstan in the period of October 15 – November 2, 2007. During this time Mr. Bekker was assisted and supported by local REMAP experts Ms. Mariyash Zhakupova in Kazakhstan and Ms. Olga Terentieva in Kyrgyzstan. They facilitated discussions with local counterparts, assisted in obtaining and review of documents and contributed to the development of the report.

During the meeting in Bishkek, Kyrgyzstan on October 31, 2007 with General Director of JSC EPS Mr. Balkibekov, Mr. Balkibekov suggested to conduct a pilot trading of a small amount of energy (approximately 3-5 Mw for several hours) in November through a day ahead spot market auction on the Kazakhstan centralized trading platform administered by Kazakhstan Operator of Energy and Capacity Market (KOREM). Conducting of this specific trade was not originally envisioned as a part of the outcome for this specific activity, however the mere fact that the REMAP's meeting with a local counterpart produced such an opportunity provides a certain level of confidence that REMAP efforts are getting a response. REMAP staff had worked diligently with KOREM and JSC EPS staff to explore this opportunity. Unfortunately due to a number of factors (including the delay in obtaining transmission service in Kazakhstan, an outage of one of the generating blocks, and numerous political factors in Kyrgyzstan) the pilot trading hasn't been conducted so far, but there are reasonable expectations that it may be conducted during the first half of 2008.

It is also worth to note that although the main goal of current REMAP focused assistance is to contribute to the enhancement of a cross border trading between Kyrgyzstan and Kazakhstan, during the meetings with local counterparts in Kazakhstan and Kyrgyzstan there were numerous suggestions and requests expressed to REMAP representatives about providing technical assistance to enhance the efficiency of their respective power market and power system operation. This report contains recommendations to the extent that the REMAP staff can provide the requested assistance.

Finally, as it was envisioned by the scope of work for this task, it was expected that this report would contain a combined technical and legal review of all aspects influencing the issues of cross border trading between Kyrgyzstan and Kazakhstan, as well as issues related to the enhancement of Kazakhstan wholesale power market. To this extent the scope of work envisioned involvement of legal experts – expatriate and local. However by the time that work has begun, expatriate and Kazakhstan legal expert had not yet been identified. Subsequently it was decided in consultation with USEA and Mr. Bekker that the need for the legal expatriate expert would be assessed based upon analyses of the situation on the ground. It was also decided that USEA Kyrgyzstan representative Ms. Olga Terentieva should act as the local legal expert addressing both Kyrgyzstan and Kazakhstan legal issues. However due to the preoccupancy with other REMAP project activities Ms. Terentieva couldn't devote necessary level of efforts to address the legal issues, especially the legal issues related to Kazakhstan. Because of this the report only contains a technical review and analyses. As was suggested in the action plan the legal review and associated analyses should be completed later and issued as an attachment to this report when the legal assessment is completed.

III. Kazakhstan Wholesale Power Market

III.1. History of the Kazakhstan power market and the current power market situation

Kazakhstan is one of the first republics of the former Soviet Union that has developed a functioning electric power market. Kazakhstan is a winter peaking power system with an annual peak in 2006 of 11,225 MW. At the end of 2006, Kazakhstan had just under 19,000 MW of installed (nameplate) capacity, some of it in poor operating condition, so that this amount of nameplate capacity translates into approximately 14,500 MW of operable capacity.

The foundation for the current structure of the power market was laid down at the end of 1995 when the President of Kazakhstan issued a presidential decree "On Energy" dated December 23, 1995, which had the force of the law. This was followed in May 1996 by the "Program of Privatization and Restructuring of the Power Sector" approved by the Government of Kazakhstan's resolution #663. The "Program of Further Development of the Power Market for the Period of 1997-2000" was further outlined by the Government of Kazakhstan's resolution #1118 in September of 1996.

As a result of these major reforms, during 1995-1996 the following milestones were reached:

- Division of the power sector by the form of functioning competitive entities and regulated monopolies;
- Large scale privatization of generation;
- Creation of the national electric grid company "JSC KEGOC;" and
- Formation of regional distribution companies ("RECs").

In February of 2004, the concept of further development of market relations in the Kazakhstan power sector was developed. In July 2004 the Kazakhstan Electricity Law was passed. All these

events have laid a solid framework for the development of the Kazakhstan wholesale power market.

The legal and normative base for the Kazakhstan wholesale power market is based upon following documents:

- The Concept of Further Development of Market relations in the Power Sector -- February 18, 2004;
- New Electricity Law -- July 9, 2004;
- "Rules of Organizing and Operation of the Wholesale Power Market of the Republic of Kazakhstan" -- August 27, 2004;
- "Rules for Providing Services by the System Operator and the Organization and Functioning of the Ancillary Services Market" -- September 10, 2004; and
- "Rules for the Organization and Functions of the Centralized Trading of Electric Energy in the Republic of Kazakhstan"-- September 10, 2004.

All known wholesale power markets are necessarily impacted by the distinct characteristics of the respective electric power systems. In Kazakhstan these distinct wholesale power market characteristics are as follows:

- The market structure is supported by a relatively well developed technological infrastructure;
- The Kazakhstan power system is not a united power system. Its Eastern and Western parts are only connected through Russia. There is a lack of sufficient transmission tie line capacity between the South Eastern Kazakhstan and the rest of power system. From the point of view of a "united power system" the southeastern part of Kazakhstan belongs to the united power system of the rest of Central Asia.
- Kazakhstan is a large territory, with low density of population, unequal distribution of resources and large industrial enterprises, along with sharp differences in weather conditions (length of heating season in the northern regions of the country compared to southern regions);
- There is a high degree of integration of the most part of Kazakhstan power system with UES of Russia;
- There is a high concentration of generating capacity within single power plant (up to 4,000 MW), high share of CHPs and a low share of hydroelectric capacity which causes a shortage of both peaking and regulating capacity; and
- Affiliation of most energy intensive enterprises with large power plants.

Currently, Kazakhstan is on a verge of a serious capacity shortage, especially in the southeast. The Kazakhstan power supply critically depends on Russian, Kyrgyzstan and Tajikistan power systems for load following and frequency regulation. Introduction of a modern wholesale power market in Russia has led to unwillingness of the other Russian power system entities to provide vital ancillary services to Kazakhstan power system at the old and outdated pricing schemes. This is expected to contribute to the further financial strain on Kazakhstan power system. Under these circumstances the issues of modernizing its wholesale power market and ability to purchase energy from the rest of Central Asia become of utmost critical importance.

III.2. Structure of Kazakhstan Wholesale Power Market

The structure of the Kazakhstan wholesale power market rests upon two major infrastructural organizations: Kazakhstan Electric Grid Company (KEGOC) and Kazakhstan Operator of Energy and Capacity Market (KOREM), both owned by the government. KEGOC owns the high voltage transmission system and together with the National Dispatch Center, which is also a part of KEGOC, acts as the System Operator of the national power system. KOREM is an operator of the centralized trading market. It administers a trading platform through which market participants may submit offers and bids for short and long term power supplies. Based upon these submittals, buyers and sellers are matched up and, if applicable, the clearing price is calculated. A more detailed description of KOREM operation is discussed later in a special chapter of this report.

Until 2004, the responsibility to create preliminary dispatch schedules rested with KOREM. Beginning in 2004, this responsibility for developing and managing dispatch schedules was assumed by KEGOC. At that point, KEGOC became a full scale technological System Operator. Today the preliminary dispatch schedule is developed by the KEGOC System Operator based upon the information in bilateral contracts, which comprise the majority of trading on the electricity market.

The current trading activities are concentrated in three parallel markets:

1. Market for bilateral purchase/sale contracts;
2. Market for short-term (next day) trading;
3. Market for ancillary services.

A new 4th market, balancing energy supplied in real time, is now under development and is expected to commence operation in the first half of 2008.

All bilateral contracts, including those that were entered into through KOREM trading must be physically executed, as there is no financial market. Since all of the contracts are reflected in the preliminary dispatch schedule, any real-time deviations from the dispatch schedule are currently, before the balancing market goes into operation, subject to a system of administratively derived penalties, unless such deviations were at the request of the System Operator.

The following entities are eligible to participate in the Kazakhstan wholesale power market:

- Producers and consumers of energy whose capacity is equal to or greater than one MW;
- Load serving entities-guaranteed suppliers that supply energy for consumers in their regions;
- Licensed traders; and
- Distribution Companies.

There are currently over 100 registered and licensed market participants in the Kazakhstan wholesale power market. KEGOC also acts as a market participant when it purchases transmission losses.

The volume of energy trading on Kazakhstan wholesale power market has steadily increased from 950 GWHRS in 2004 to approximately 4800 GWHRS in 2006.

III.3. Kazakhstan Wholesale Power Market Regulation.

Currently the responsibility for regulation of the Kazakhstan wholesale power market is basically spread between two entities – the Agency for Regulation of Natural Monopolies (ARNM) and the Competition Protection Committee (CPC). ARNM is an independent agency while CPC is currently a division of the Kazakhstan Ministry of Industry and Trade. In October of 2007, the Government of Kazakhstan issued an order establishing CPC as an independent agency, however just recently this order was suspended and CPC continues to operate under the Ministry of Industry and Trade. The bilateral contracts market is for all practical purposes not regulated. In Kazakhstan's current regulatory interpretation these bilateral contracts are competitively priced and therefore are absolved from regulation by regulatory authorities. ARNM regulates activities of the monopolies – KEGOC, regional distribution companies and KOREM. As part of this regulation it establishes cost-based tariffs for these entities, but also regulates (approves) rules for centralized trading and balancing market, even so as these markets are based on competitive offers and bids.

CPC has a responsibility for monitoring power market operation but has no direct authority over monitoring of bilateral contracts and approval of power market rules. ARNM has an extensive experience in the area of traditional cost-based regulation, but both entities sorely lack expertise in regulation and market monitoring of competitive power markets. In this regard it needs to be mentioned that CPC has requested technical assistance from REMAP in the area of power market monitoring. As part of the proposed action plan, it is recommended that REMAP provides technical assistance to CPC on wholesale power market monitoring issues.

III.4. Kazakhstan Wholesale Power Market Operators.

Kazakhstan essentially has two market operators – KEGOC and KOREM. KEGOC fulfills the functions of a traditional transmission system operator that operates the national high voltage grid, a national dispatch center, is responsible for the development of preliminary dispatch center and for the secure and reliable operation of national power system. By virtue of all these

responsibilities KEGOC serves as a technological operator of Kazakhstan wholesale power market. With the development of the balancing market, KEGOC will also serve as an operator of this market through its newly formed affiliate. As was noted above KEGOC at times is buying energy from the wholesale market to compensate for transmission losses, which makes them a market participant. This doesn't go well with the one of main principles of having the system operator being independent from market activities. KEGOC also has an authority to engage in some market activities associated with Kazakhstan obligations under regional inter-governmental water and energy agreements.

KOREM acts strictly as a market operator. It administers operation of centralized trading platform which facilitates internet based electronic trading of electric energy for different time ranges. Detailed description of KOREM operation is given in the next section of this report. As was noted above, before 2004 KOREM was responsible for development of preliminary dispatch schedule. As of 2004 this responsibility belongs to KEGOC which makes KOREM's facilitated transactions subject to KEGOC approval and therefore constrains liquidity of centralized trading.

The issue of where the single system/market operator is advisable and whether it functions are best served by the grid company will be one of the toughest issues to decide in the process of wholesale market enhancement. Disadvantages of not having the system/market operator in charge of the operating control of transmission system clearly manifested itself when KOREM attempted to implement the pilot trading of energy from Kyrgyzstan but was not able to obtain timely approval for transmission service from KEGOC.

III.5. Operation of KOREM and its Ability to Accommodate Cross-Border Trading

As was noted above at the current time one of the most promising directions of regional market development in Central Asia is the building up capacity of KOREM to serve as a trading platform for the cross-border trading with a perspective to become a regional international power exchange. The goal of establishing KOREM as a regional power exchange is listed in the President of Kazakhstan's February 2007 address as one of the main goals to be achieved in country's power sector development. Therefore in light of the role KOREM is expected to play in regional power market, the structure and operation of KOREM administered market is addressed in more details below.

KOREM was established in April, 2000 as a 100% government owned entity with a purpose of administering a day ahead centralized trading market, developing preliminary dispatch schedules and implementing the actual supply/demand balances. As was mentioned above, in 2004 the latter functions were transferred to KEGOC.

As of October of 2006 KOREM stock is managed by the Kazakhstan government holding "Samruk".

At present time KOREM successfully administers centralized electric energy trading using modern information technologies, including the internet. Amount of generation committed to existing bilateral purchase/sales agreement can't be offered for centralized trading.

All trading activities are conducted in accordance with rules approved by the Ministry of Energy and Mineral Resources (MEMR) in September of 2004 and are based on competitive price offers from suppliers and price bids from loads. These rules define the process of centralized trading roles, responsibilities and rights of the market operator and market participants.

KOREM trading is conducted in two principal modes:

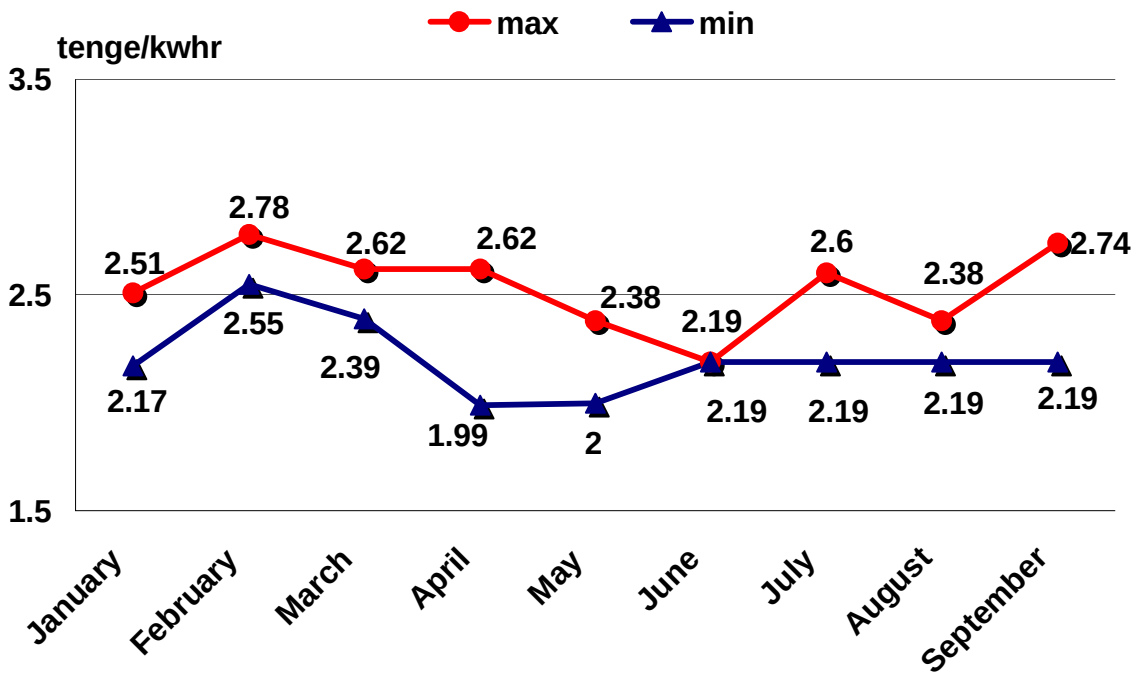
1. trading for long term (one quarter), mid-term (one month) and short term (weekly, daily) periods; and
2. day-ahead spot trading.

KOREM is also authorized to conduct special trades of electricity generated by hydroelectric power stations during the special water resources utilization periods.

The long, medium and short period trading goes on in a "bulletin board" process. Participants submit their price offers and bids electronically via internet. When the system detects a matching "offer-bid" pair, it notifies the parties that submitted the matching offer and bid. After that parties meet and negotiate a bilateral agreement under which ultimately the transaction will take place. If parties are unable to reach an agreement the transaction does not go through. In this trading format KOREM simply acts as a "matchmaker".

The day-ahead spot trading is conducted by using supply offers and demand bids submitted by participants to calculate a "clearing" price. All potential buyers are requited at the time of their price bid submittal to deposit a sum of money to specially established bank accountants that will satisfy its potential financial obligations if their bids clear. All sellers whose supplies are cleared receive the clearing price and all buyers pay that clearing price. At the end of the auction session, KOREM notifies those parties whose offers and bids have cleared the market about the volume of energy each party sold/purchased and at what price. KOREM then issues payment instructions to the bank that holds the deposited funds from which accounts to withdraw specified amounts and where to transfer them. Obligations of generators that sold energy in these auctions are reflected in preliminary dispatch schedules and all deviations are treated after the fact just as generation deviations from bilateral contracts would be treated. This format of trading practically guarantees liquidity of transactions since no additional contract negotiations are necessary. Of course KEGOC still has to confirm availability of transmission service for all generation cleared in the centralized market. Another advantage of this format of trading is that it provides a clear market price signal..

The graph below illustrates the dynamic of changing of monthly average clearing prices realized in day ahead spot trading during the first nine months of 2007.



As it is shown in this graph, the lowest price – 2.19 tenge/kwhr (1.82 c/kwhr) was observed in June of 2007. That is consistent with the fact that during this time of the year there is significant amount of hydroelectricity available due to mandatory water passages. For comparison, sale auctions conducted by JSC EPS of Kyrgyzstan in the same period of time yielded the price of approximately 1.5.c/kwhr. This price is lower than the lowest average monthly price realized in KOREM spot trading during January – September period in 2007.

It is understandable that JSC EPS management expressed special interest to participate in this kind of trading. However under this trading format it is impossible to tell who purchased energy from whom. The payment instructions that KOREM issues to fund account holders are for convenience of settlements only and do not establish specific parties for specific transactions. If one of the sellers is a foreign entity, like Kyrgyzstan, it would be impossible to then determine the buyer(s) that purchased "Kyrgyzstan" energy and is therefore responsible to clear it through custom. Apparently the market administrator would need to facilitate custom clearing procedures for this format of trading.

In 2006 the total volume of the electric energy traded on KOREM was 4,864.5 million kWh which is an increase of more than 30% compared to 2005. The share of energy traded on KOREM in 2006 was 11.6% of total energy. This is 3.1% more than it was in 2005. Of the total amount traded in 2006 on KOREM 4,377.3 million kWh were traded in long, medium and short term trading and the remaining 187.2 million kWh were traded in the day ahead spot trading.

The total amount of energy transacted at the day ahead spot trading during January – September period of 2007 was 66,279 MWh. Meanwhile in the same period in the week ahead trading there were 315,672 MWh of energy traded at prices ranging between 4.75 tenge/kWh and

2.38 tenge/kWh (3.96¢/kWh and 1.96¢/kWh, respectively). During the same time there, 1,916,688 MWh of energy traded at prices ranging between 4.99 tenge/kWh and 1.96 tenge/kWh (4.16¢/kWh and 1.63¢/kWh). At special sessions for trading of hydroelectric energy during the times of massive water passages 266,616 MWh were traded at prices ranging from 1.77 tenge/kWh to 0.91 tenge/kWh (1.48¢/kWh and 0.76¢/kWh).

This data shows that there are significant opportunities to explore by participating in KOREM market and attractiveness of this market for Kyrgyzstan power producers.

III.6. Cross-Border Trading

As was already noted, the vast majority of cross border trading in Central Asia is conducted in accordance with inter-governmental agreements on electricity and water usage. These agreements serve as framework agreements from which bilateral agreements for the sale/purchase of electricity are negotiated. With regard to Kazakhstan, this results in electricity supply being received from hydroelectric generating resources of Kyrgyzstan. In the past, the energy supplies under these agreements were paid for in large part by "in-kind" energy exchanges being supplied by buyer to seller at another time or by the electricity buying party supplying fuel resources to the selling country. In the last couple of years this practice was largely abolished and parties adopted strictly monetary method of payments. Because of this financial settlement system for buying and selling energy the price of energy from Kyrgyzstan in Kazakhstan market may increase. This would enable Kyrgyzstan to receive an adequate amount of revenue from selling its energy to secure purchasing of sufficient amount of fossil fuel resources for its thermal power plants operation in the winter. Otherwise Kyrgyzstan would have no choice but to continue to run its hydroelectric generation plants in the winter which may lead to flooding in certain areas of Kazakhstan and to the shortage of water for irrigation in the summer.

The cross-border flows of electricity from Kyrgyzstan and sometime from Tajikistan are quite often caused by the need to supply balancing energy for load following and frequency regulation purposes. This energy is paid for in accordance with regionally established methodology for the payment for regulation capacity.

So far during 2007 the total Kazakhstan purchases from Kyrgyzstan amounted to approximately 1.1 billion kwhrs. Most of this energy was purchased by Kazakhstan traders on special auctions conducted by JSC EPS of Kyrgyzstan at prices ranging from 1.5 to 1.6 c/kwhr and subsequently resold in Kazakhstan wholesale power market.

Today the largest Kazakhstan's electricity trading partner is the Russian Federation. For the first six months of 2007, electricity imports from Russia to Kazakhstan amounted to 1.073 billion kwhrs while electricity exports from Kazakhstan to Russia for the same period amounted to 1.983 billion kwhrs. These numbers reflect only power purchases/sales under contracts with RAO UES of Russia and do not reflect cross border flows between two countries for the purposes of balancing energy and frequency regulation..

Representatives of Kazakhstan power sector (MEMR, Samruk, KEGOC, KOREM, ARNM, CPC and major private market participants) are actively participating in REMAP's efforts to assist in establishing regional power market.

III.7. Achievements and Shortcomings of Kazakhstan Power Market and an Assessment of market improvements.

Within a relatively short time, development of the Kazakhstan wholesale power market has marked significant achievements. These achievements can be summarized as follows:

- The Kazakhstan wholesale power market is a real competitive market where all transactions are entered into on competitive basis;
- A modern trading platform for electronic trading has been created which satisfies the needs of the market participants;
- The market structure provides a normative base for implementation of physical bilateral trading;
- The centralized trading market administered by KOREM is relatively liquid;
- The volume of transactions in the market for centralized trading exceeded 10% of the total volume of the wholesale market transactions which is consistent with the level observed in the operations in other developed wholesale power markets elsewhere in the world;
- Market participants have gained significant knowledge and practical experience in market operations; and
- Given the available level of transmission access, KOREM can accommodate trading by entities from outside the Kazakhstan, which will be a step forward in implementing the regional trading.

Even with these significant achievements further development of Kazakhstan electricity market faces significant barriers. There are many more issues that need to be addressed. The work toward resolving some of these issues is currently in progress. For example, the new balancing market that would allow settlement of deviations from bilateral contracts and preliminary dispatch schedule is expected to commence its operation in the first half of 2008. But there are serious structural issues that need to be dealt with in order to bring the market to a higher level. Kazakhstan power market in its current state fails to satisfy one of the major responsibilities of modern competitive power market – it does not provide pricing signals that would serve as incentive for making sorely needed investments in power sector resources. Therefore REMAP undertook the task to identify the barriers preventing further development of Kazakhstan wholesale power market and to suggest approaches to overcome these factors. The assessment of these barriers and suggested approaches to their removal are given below in this section.

The following factors prevent further progress of Kazakhstan wholesale power market:

- The wholesale power market is overly dependent on bilateral power sale/purchase agreement which have to be physically executed. No provisions exist for financial settlement of bilateral contracts, all negotiated financial contracts need to be physically implemented. This reduces the efficiency of power system operation as well as impacting efficiency and restricting the volume of centralized trading.

- Bilateral contracts are registered only with the System Operator to the extent that System Operator needs the technical information for contract's physical implementation. No other details are made available which makes market monitoring task very difficult if not impossible.

- KEGOC purchases transmission losses from the market participants. This in effect makes KEGOC, which is the System Operator, a market participant and may represent a conflict of interest.

- Market settlement for centralized trading is not made through the clearing center. The current system requires potential buyers to deposit a substantial sum of money in advance in order to participate in this kind of trading. This may explain the fact that day ahead spot trading volume is very low, although this is a type of trading that produces market price signals.

- There is no sound approach to congestion management, in some instances occurrences of transmission congestion are treated as "Force Majeure".

- There is no market stakeholder organization. Neither KEGOC nor to lesser extent KOREM are formally accountable to market participants, there are no regular feedback from market participants to infrastructural entities.

- The entities responsible for market regulation and monitoring – ARNM and CPC, are inexperienced in these tasks and need technical assistance. The CPC has requested such assistance from REMAP and it is recommend that this assistance be provided

In October REMAP representatives met with representatives of KEGOC, KOREM and CPC and discussed approaches to deal with these deficiencies. Our assessments in this regard are based on these discussions and expert opinion of REMAP staff. These assessments are detailed below:

- In order to improve efficiency of power system operation and increase the volume of centralized trading it is recommended to allow financial settlement of bilateral contracts without mandating its financial execution. Implementation of this option may require introduction of centralized economic merit order dispatch.

- In order to increase the volume of centralized trading and enhance spot market trading, it is recommended that all suppliers should be required to submit on a day ahead basis price offers for the full available amount of generation that should also include energy

committed to bilateral contracts. Financial settlement of bilateral contracts would allow implementation of this option. It would also allow integration of the balancing market into day-ahead spot trading.

- It is recommended that all bilateral contracts be registered with an entity responsible for market monitoring. This entity must be responsible for assuring the confidentiality of commercially sensitive information;

- It is recommended that in order to facilitate cross border supplies of energy into day-ahead spot trading the operator of centralized trading should engage the national custom service into developing of procedures that would allow participation of energy import/export in centralized trading in compliance with custom procedures.

- In order to improve market operation efficiency it is advisable to create an independent market operator, responsible for technological operation of the national power system and centralized market operation. This independent market operator should assume the operational control of the transmission system.

- It is advisable to form an organization of market stakeholders that will hold regular meetings to collectively discuss power market related issues.

If the agencies responsible for the further development of the Kazakhstan wholesale power market make a decision to implement these recommendations REMAP should be prepared to provide the related necessary technical assistance.

III.8. Short-term Action Plan for continuing REMAP activities and proceeding with recommendations.

In July of 2007 representatives MEMR, KEGOC, KOREM and CPC participated in the USAID sponsored study tour to the USA to examine operation of the USA power market operated by PJM Interconnection and had a first hand opportunity to compare operation of the PJM market with operation of Kazakhstan power market. Upon returning from the study tour CPC and KOREM representatives met with the media and discussed problems facing the Kazakhstan power sector in general and Kazakhstan wholesale power market in particular. These interviews, which were published in the newspaper "Kazakhstanskaya Pravda" and in the "National Business" magazine, demonstrated that some representatives of power sector community recognize the need for changes.

In response to this need to change, CPC has agreed to initiate a top level meeting to discuss the actual problems facing Kazakhstan wholesale power market with participation of high level managers of the various entities responsible for power system and power market operation. At this proposed meeting REMAP will be given an opportunity to present its findings and recommendations.

The following plan of action summarizes the recommendations related to the on-going development of Kyrgyzstan – Kazakhstan cross border trading using Kazakhstan centralized trading platform and the continuing enhancement of existing Kazakhstan wholesale power market:

- REMAP staff working together with CPC and KOREM should help in organizing a meeting with the Kazakhstan power sector policymakers to suggest and discuss directions of further enhancement of the wholesale power market. CPC and/or KOREM should act as moving forces for organizing the meeting. – Mid January 2008

- Assuming a positive outcome of the meeting with the Kazakhstan power sector policymakers in January 2007, the REMAP staff should continue to discuss the directions for further enhancing of Kazakhstan wholesale power market with a wider set of power market stakeholders. – End of January 2008

- REMAP staff organizes a meeting with the management of National Electric Grid Company of Kyrgyzstan regarding the current state of the regional power system issues that are of concern to the Kyrgyzstan power system. These discussions should result in identifying the approach that REMAP should adopt to help resolve these issues in a way beneficial to the Kyrgyzstan power system. – Mid to End of January 2008

- REMAP staff and KOREM management should engage both Kyrgyzstan and Kazakhstan custom officials in discussion and resolution of issues related to energy export/import in the centralized wholesale power trading process. As part of this effort REMAP should organize joint meeting of Kyrgyzstan and Kazakhstan custom officials. – Mid-January – End of January

- REMAP should provide technical assistance to CPC on wholesale power market monitoring issues by providing a number of workshops with CPC staff to introduce international practice approaches to competitive market monitoring – Mid January – Mid April 2008. – Mid January – Mid April 2008.

- REMAP staff together with KOREM should analyze the extent to which legislative, legal and regulatory changes are required to implement recommendations to enhance the Kazakhstan wholesale power market operation. – February – March, 2008

- REMAP staff should organize a meeting of representatives of Kazakhstan and Kyrgyzstan to discuss and agree on best ways to implement trading of Kyrgyzstan energy on KOREM. – Mid-March, 2008

- REMAP staff together with KOREM staff should work on removing barriers to trade Kyrgyzstan energy on KOREM in time for the beginning of 2008 water passage season. – February – April, 2008

- REMAP staff and Kazakhstan counterparts would continue to work on recommendations following meetings on Kazakhstan market enhancement issues. - February – July, 2008

The goals of this action plan and associated recommendations are;

- The first kilowatt hours of Kyrgyzstan electricity would be traded on KOREM. – Mid-April, 2008
- Recommendations toward enhancing Kazakhstan wholesale power market operation are accepted by the power sector policymaking agencies and implementation plan is developed – January – April, 2008

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As a result of all these proposed activities the action plan outlined above would be updated regularly and reviewed with USEA and USAID on an ongoing basis to adjust activities as new information becomes available and activities need to be changed to be responsive the CAR power sector stakeholders.

There are some risk factors that may impact achievement of the milestones identified in this action plan. Some of them are political. The action plan envisions significant role for CPC as an entity that has a responsibility for market monitoring. Currently CPC operates as a division of Ministry of Industry and Trade. In October of 2007, the Government of Kazakhstan issued an order, establishing CPC as an independent agency; however that order was just recently suspended before it was implemented. CPC continues to operate under the Ministry of Industry and Trade, however as we recently found out there are some organizational changes expected. This has already impacted CPC ability to initiate the high level meeting of power sector stakeholders in December of 2007, as it was planned initially, and may impact its ability to initiate that meeting in January.

The other major risk factor is how receptive KEGOC will be to these upcoming changes. REMAP representatives' latest meeting with KEGOC left an impression that KEGOC considers itself an ultimate authority on the power market and is somewhat resistant to outsiders meddling in its territory. The work on legal issues associated with Kazakhstan power market and cross border trading has yet to begin and may reveal some issues that aren't identified yet. Finally, after the parliamentary elections in Kyrgyzstan at the end of December, the new Kyrgyzstan government is expected to be formed. Expected new appointments in the Ministry of Industry, Energy and Fuel Resources and in the management of JSC EPS may impact the willingness of Kyrgyzstan to trade their energy on KOREM.

IV. Kyrgyzstan Power System

IV.1. Current State of the Kyrgyzstan Power System and its role in the operation of the United Power System of Central Asia

Kyrgyzstan power system is characterized by its reliance on hydroelectric generation - 2,900 MWT of capacity, which represents 82.2% of total 3,600 MWT of capacity in Kyrgyzstan. Electric energy is the main export commodity of Kyrgyzstan. Therefore the Government of Kyrgyzstan pays a very close attention to the situation in the power sector.

Kyrgyzstan has unbundled its power system, creating a National Electric Grid Company ("NESK"), which owns a national transmission system, includes in itself National Dispatch Service and acts as a national transmission system operator, JSC "Electric Power Stations" ("JSC EPS") which owns all generating plants, and four electric distribution companies which supply electricity to Kyrgyzstan retail consumers.

JSC EPS exports electric energy to Kazakhstan, Tajikistan, Uzbekistan, Russia and China at market based prices. JSC EPS export strategy envisions two major directions:

1. Export in accordance with regional intergovernmental agreements on water usage and energy; and

2. Export by long term bilateral contracts.

Since domestic electricity tariff rates in Kyrgyzstan are very low and not nearly sufficient to cover the actual cost of electricity production, transmission and distribution, the revenue received from the export of electric energy is a main source of the "well being" of the national power sector. Therefore Kyrgyzstan has a vital interest in the development of the regional power market.

In the past the energy that was supplied to Kazakhstan and Uzbekistan under the framework of regional inter-governmental water and energy agreements was paid for by supply of fossil fuel (natural gas from Uzbekistan, coal from Kazakhstan) to Kyrgyzstan, so that Kyrgyzstan could use these resources at its thermal electric plants to produce energy and save water for summer irrigation period. Lately Central Asian countries adopted all monetary compensation for the electricity supplied in accordance with water and energy agreements. Electricity prices that Kyrgyzstan received from these sales do not yield sufficient revenue to procure enough fossil fuel for the level of thermal electric plants operation during the winter so that Kyrgyzstan may be forced to produce more and more of hydroelectric energy which may be in violation of inter-governmental agreements and may lead to winter flooding of some land in southern Kazakhstan and a reduction in the amount of water available in the summer for irrigation purposes. As a result of this situation, Kyrgyzstan has a vital interest in development of the regional electricity markets and selling its hydroelectric energy at the highest possible prices.

The hydropower resources of Kyrgyzstan play special role in the operation of the United Power System of Central Asia (UPS CA), which at present time comprises national power systems of Kyrgyzstan, Uzbekistan, Tajikistan and southern part of Kazakhstan. Kyrgyzstan's power system

was designed not only to produce electricity, but under the Central Asia United Power System arrangements Kyrgyzstan's hydropower resources along with hydropower resources of Tajikistan provide major ancillary services for the UPS CA – frequency regulation and operating reserves. To fulfill these obligations Kyrgyzstan needs to restrict its hydropower production in order to maintain operating capacity reserves. Kyrgyzstan power system does receive some compensation under the regional tariff for providing regulating capacity, but only in the form of energy payments when energy, associated with regulation is generated. There is no compensation at all for either maintaining reserve capacity or the lost opportunity costs. Therefore to deal with its problems Kyrgyzstan will have to address issues related to energy sales to Kazakhstan by expanding its export to KOREM trading, and will have to address issues associated with selling ancillary services to the UPS CA.

IV.2. Role of NESK in Cross-Border Trading

NESK plays an important role in Kyrgyzstan cross border trading. NESK evaluates availability of transmission service, resolves all transmission related issues that may arise during implementation of cross border transactions and represents Kyrgyzstan interests in the regional power system governing bodies. The National Dispatch Center which operates as a division of NEGC develops dispatch schedules for the power system generating resources and coordinates its operation with other national dispatch centers and the regional Coordinating Dispatch Center "Energia" (CDC "Energia") located in Tashkent, Uzbekistan. In essence NESK fulfills the responsibilities of a national TSO – Transmission System Operator. It leads efforts to develop national power system expansion plan and actively participates in the regional planning activities. It is the most active participant in the REMAP "CARTRANS" project designed to analyze ability of the regional transmission system to support a regional power market. NESK also plays a major role in the development of national energy strategy.

IV.3. Power Sales Auctions and Other Forms of Cross-Border Sales.

Before the year 2007 JSC EPS negotiated bilateral agreements with buyers for selling energy to Kazakhstan under the framework of inter-governmental agreements. There were numerous complaints that this process wasn't transparent and that prices negotiated for energy sales under these agreements did not reflect the true market value of energy. In response to this issue beginning in 2007 JSC EPS began to sell energy from the open sales auctions. The auctions are conducted by issuing the request for proposals for purchasing a specified volume of energy at a price that should not exceed the specified minimum value. Potential buyers had to submit a specified set of bid information and to support its bid by financial guarantee in the amount of US $150,000. JSC EPS specially established a bid evaluation committee to review all bids received and determine the winning bids based on the best price and best offered conditions of payment. If there are several competing bids, the evaluation committee ranks all bids in the order of preference. The awards are made within 5 days from the bid submittal deadline. The winners are notified in writing within 3 days thereafter and within next 7 days should conclude negotiations and execute agreement with the seller or to notify seller of disagreements or refusal of executing of contract, in which case seller has a right to negotiate agreement with the next most preferable buyer in the ranking order.

The first such auction was conducted in March of 2007 for energy to be supplied during months of April, May and June and yielded a selling price of 1.5 cents/kwhr for 900 million kwhrs. The next auction was conducted in June of 2007 for energy to be supplied during July, August and September period and yielded selling prices ranging from 1.52 c/kwhr to 1.62 c/kwhr.
As was shown in the section on KOREM operation, the prices realized in KOREM trading during the same time period were higher.

This convinced JSC EPS to sign a membership agreement with KOREM so that in the future it can sell energy through the KOREM auctions. In July of 2007, two representatives of JSC EPS received a certificate that allows them to participate in long and medium term trading, and in November of 2007 they received certificate that allows participation in a day-ahead spot trading.

IV.4. Plans for further actions regarding the Kyrgyzstan Power System and associated risk factors for its implementation.

It appears that JSC EPS is willing to engage in the cross-border trading with Kazakhstan sellers utilizing KOREM trading platform. However from our meetings with Kyrgyzstan counterparts, in particular with top managers of NESK and then deputy minister of industry, energy and fuel resources we understood that the issue of energy export is not the only area that our Kyrgyzstan counterparts are interested. The issues of Kyrgyzstan power system's participation in the regional power system operation is of equal importance for them. These issues include:

- Arrangements for payments for inadvertent cross-border power flows;
- Arrangements for the emergency energy supplies;
- Changes to the methodology for payments for regulating capacity;
- Changes to the regional transmission tariff methodology; and
- Changes to the parallel operation agreement.

It is worth noticing that the same issues are of interest for Tajikistan power system.

Based on our discussions with various Kyrgyzstan counterparts the following action plan is proposed for providing technical assistance for Kyrgyzstan regional power market activities:

- REMAP staff should organize joint meeting of representatives of Kyrgyzstan and Kazakhstan custom officials to introduce them to the concept of power exchange trading and to identify potential obstacles for cross border trading utilizing KOREM – Mid January - End of January 2008.
- If and when pilot trade takes place utilizing the KOREM trading platform, REMAP staff should conduct an analysis of the pilot trade results and develop suggestions on methodology for conducting such trades on a regular basis. Expected in January 2008

- REMAP staff should organize meeting of representatives of Kazakhstan and Kyrgyzstan to discuss and agree on best ways to implement trading of Kyrgyzstan energy utilizing KOREM trading platform – Mid-March 2008.

- REMAP staff should set up a meeting and lead the discussions with the management of NEGC regarding the current state of the regional power system issues that are of concern to the Kyrgyzstan power system. These discussions should result in identifying the approach that REMAP should adopt to help resolve these issues in a way beneficial to Kyrgyzstan – Mid to End of January 2008.

- First "non-pilot" kWhs of Kyrgyzstan electricity should be traded on KOREM – Mid-April 2008.

The goals of this action plan and associated recommendations would be to have the first kilowatt hours of Kyrgyzstan electricity traded on the KOREM power market by mid-April, 2008 and to provide assistance to Kyrgyzstan power system with resolving issues that impact efficiency of Kyrgyzstan power system participating in the operation of UPS CA.

The main risk factors for implementing the proposed REMAP action plan in Kyrgyzstan appears to be political instability which leads to frequent changes at the top policy making level and results in decision making paralyses.

From a technical and legal prospective, the main obstacles of implementation of cross border trades through the KOREM power market appear to be in Kazakhstan. During our meeting with representatives of Kyrgyzstan Energy Custom office they told us that bilateral contract for purchase/sale is a mandatory requirement, but appeared to be open to the possibility to accept a membership agreement with KOREM. The KOREM power market rules and transaction statements would suffice as adequate documentation in lieu of purchase/sale contract. The position of Kazakhstan custom officials in this regard is still unknown. Therefore to mitigate this risk factor it is important to organize the joint meeting of REMAP staff and representatives of custom services of respective countries. This meeting and discussion would help prevent potential misunderstanding at the time of actual trading. Another risk factor is that suppliers of Kyrgyzstan energy to Kazakhstan buyers from southeastern Kazakhstan and Kzylorda districts would need to secure service through Uzbekistan transmission system. NESK needs to be involved to resolve any potential issues associated with these supplies..

V. Role of the Coordinating Dispatch Center (CDC) "Energia" in Kyrgyzstan – Kazakhstan Cross-Border Trading

The Coordinating Dispatch Center "Energia" is located in Tashkent, Uzbekistan and since July of 2007 has the status of an international organization. It the highest level of the regional dispatch hierarchy and performs vital services for the regional power system operation functions, outlined in the recent interoperability report submitted by the BDR, a Gestalt Company. The Energia functions include the following:

- Reviews the bilateral schedules provided by the national System Operators using a power flow model to make sure they do not cause transmission or other problems and requests changes to these schedules if there are problems.

- Operates an Automatic Generation Control ("AGC") system to control frequency and provide any balancing energy not provided by the individual national System Operators by sending up and down control signals to a couple of large hydro stations; one in Kyrgyzstan and one in Tajikistan. CDC has guidelines on the amount (MW) of AGC they should carry and these vary with configuration of the transmission system. The amount of AGC also includes an allowance for 250 MW of operating reserves, but there is no separate payment for the operating reserves (or, for that matter, AGC (see next item)). Recently we found that AGC links have been disabled due to a system malfunction caused by outdated technology. There is a working group that is trying to develop agreed guidelines that would establish the amount and location of local operating reserve requirements. These local operating reserve requirements would be in addition to the regional operating reserve requirements.

- After the fact, allocates the amounts of balancing energy provided and consumed and informs the market participants/national utilities so they can settle these on a bilateral basis (CDC does not perform any settlement or billing). Since most, if not all, of the balancing energy comes from the large hydro units, this is how the market participants pay for the combination of balancing energy and AGC (when available). There are no specific payments for AGC capability or, as indicated above, operating reserves, only for balancing energy. Any resource providing AGC and/or operating reserves can be losing the opportunity to make additional energy sales and possibly incurring additional costs by operating at a less efficient level of output. Resources need to be compensated when they provide such important reliability services, and the provision of such payments will encourage more existing resources to offer such reliability services and more new resources to be designed to be able to provide such reliability services..

- Monitors real and reactive power: (i) flows on the 220 kV and 500 kV transmission system; (ii) output on the larger hydro and thermal units; (iii) demand at certain nodes; and (iv) deviations from schedules. CDC collects this data and sends some of it to the national System Operators. This is not sufficient data to calculate, for example, total CAR region-wide demand. Calculation of total CAR region-wide demand requires data from the national System Operators. This data is collected after each hour by the national System Operators and is used by the national System Operators to calculate national demand and to provide CDC with the information it needs to calculate total CAR region-wide demand. Also monitors, via analog telemetry, voltages at certain control points.

- Directs the national System Operators to increase or decrease their aggregate generation (i.e., the directions are not resource specific) in response to deviations from schedules. Also directs response to contingencies and, when necessary, leads system restoration efforts.

- Coordinates maintenance outage scheduling for transmission and generation. Also leads the regional effort to coordinate transmission expansion planning

Most of these CDC "Energia" services are necessary for successful implementation of cross-border power flows, including the flows of energy from Kyrgyzstan to Kazakhstan.

CDC is also a party in development of intergovernmental water and energy agreements that serve as framework agreements for the most of Kyrgyzstan-Kazakhstan cross border trading.

With regard to Kyrgyzstan ability to obtain a fair compensation for providing ancillary services for the benefit of entire UPS CA, NEGC in its efforts to maximize it actively cooperates with CDC.

There is a prevailing opinion among national system operators in the region that CDC is unduly influenced by Uzbekistan. The strengthening of CDC institutional capacity may help them to better resist any Uzbekistan attempts to exercise such influence and in fact is also an indirect assistance to the Kyrgyzstan and Tajikistan national power systems.

V. Conclusion

The recommendations and suggested plan of actions, contained in this Report, are based upon discussions during the various meetings the REMAP staff held with the local counterparts in Kazakhstan and Kyrgyzstan. They reflect the views and ideas, voiced during the meetings, that REMAP staff finds to be reasonable and acceptable for providing REMAP technical assistance in the implementation process. The forms and shapes of providing such assistance should become the subject for a special discussion involving REMAP experts, USEA, USAID and local counterparts. The local counterparts in Kyrgyzstan and especially in Kazakhstan are very competent experts in their respective fields and are proficient in operation of a sophisticated power system. They are capable of developing guidelines and rules for specific aspects of power trading and power system operation. What they need and expect from the REMAP experts is advisory assistance on updated approaches to solving their issues, adopted from the international practice elsewhere in developed power markets. Such assistance can be provided by expat experts by reviewing and commenting on documents developed by the local counterparts and by participating in joint activities, such as meetings and workshops conducted during periodic field trips to the region.

That is also applies to the assistance on legal issues. Local legal experts should work with the REMAP staff market experts to identify to what extent recommendations on market enhancement necessitate changes in legislation and legal and normative documents. After that if advisory assistance with regard to the best international practice in specific areas is necessary the expat legal experts should be mobilized. At this point one such legal issue – application of custom regulations for the international power exchange operation, is already identified. It is expected that discussion during the suggested high level meeting on the subject of Kazakhstan power market enhancement will identify more issues where legal advice on international experience will be in order.